

NATURALIST NOTEBOOK

APRIL 1972

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NATURALIST NOTEBOOK

APRIL 1972

VOLUME VIII

NO. 4

FRONT COVER

"TIDAL INLET"

Photograph by W. M. Miller, Jr.

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INSIDE BACK COVER

TSC TERRITORY

Map by Shelley White

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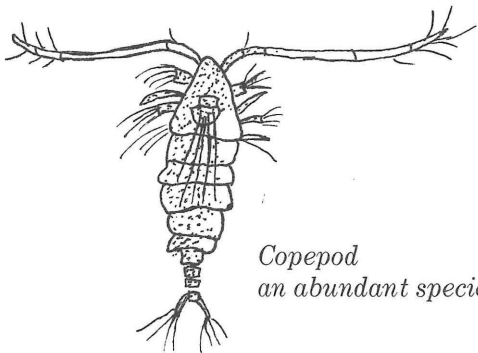
APRIL THE MONTH OF TERRITORY

Our articles this month look at the ways in which the aspects of territory contribute to life. As we observe nature more closely, we become aware that each creature and growing thing has a definite range within which to live and sustain itself. The limits of this place in the sun, in which the individual is able to satisfy itself in all ways, are set by certain physical and biological criteria for each species.

Realizing that we are also one of nature's species, let us consider our own territories. How do we limit them? Beyond the demands of our minimum needs, how sensitive are we to all the influences within them? Because man operates on so many levels at once—physical, emotional, cerebral, spiritual, social—this question may seem a demand to consider too much at one time. Try thinking about each singly (although, of course, they are unavoidably linked). Perhaps a better question might be, *why* do we limit our territories? The only limits should be those set out of consideration for other individuals.

Inside the back cover is a map of TSC territory. It can be a guide for expansion of your personal territory. There are a wealth of areas for activity at any level. And what is a better time for beginning exploration than April, when we celebrate Earth Day? As Shakespeare said, "the place is dignified by the doer's deed."

“BLOOMING” TIME



*Text and Illustrations
by Barbara Kashanski*

*Copepod
an abundant species of zooplankton*

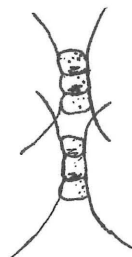
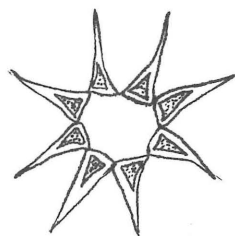
When the month of April arrives, most of us know it is time for the early spring plants to start blooming. What most people do not realize is that early spring is also the time for another kind of plant bloom. This is the plankton “bloom” that occurs in our territorial off-shore waters, in our rivers, and in great abundance at the mouths of the rivers. It starts about mid-April and continues to June.

Plankton is the term given to the infinite numbers of floating microscopic plants and animals found in the surface waters of the oceans. Plankton are divided into two main groups—phytoplankton (plant plankton) and zooplankton (animal plankton). In the sea, as on land, it is the plants that are the first basic link in every food chain; for only plants can capture energy from the sun and convert it to the sugars, starches, and proteins that animals live on. In order of importance, then, the phytoplankton bloom will be emphasized.

Seasonal changes affect the reproduction and growth of plankton as, in a similar way, the seasons affect plants and animals on land. During the winter, low temperatures and reduced amount of sunlight inhibit growth and reproduction of plant plankton and, in turn, of animal plankton that feed on it. In April when the days get longer, providing more sunlight and warmer temperatures, and when there is an increased supply of nutrients available, the reproduction rate of phytoplankton greatly increases (up to 300% per day). At times, these microscopic one-celled plants are so thick that the color of the water will change where they are concentrated in large numbers. The results of this marked increase in reproduction is a “bloom” of phytoplankton consisting chiefly of diatoms.

Diatoms (algae) are the most abundant of the single-celled plant plankton. There are many different species of diatoms, each different in shape. The unusual and often beautiful shapes of diatoms are a result of the transparent silica shells these microscopic plants secrete around their bodies. It stands to reason that in order to have large numbers of diatoms, an ample supply of silica must be available to them. In the spring, due to melting snow and ice, great quantities of silica are washed down to the oceans by way of our streams and rivers. It also may be leached or dissolved from our shores that have a good supply of granite (which has a high silica content) or quartz (which is almost pure silica). Thus, the main requirements of light, temperature, nutrients, and silica needed by diatoms for growth and reproduction are available in our coastal waters. Consequently, phytoplankton blooms are a seasonal occurrence here and can be observed by anyone who is interested or curious.

If you would like a fascinating new experience, why not try collecting some plankton during the "bloom" this spring? Equipment need not be elaborate or expensive. To collect the plankton, a fine-meshed net will be needed. This can be made by stitching together a cone-shaped piece of fine material (silk or nylon) about $1\frac{1}{2}$ to 2' in length. Leave both ends open and fasten the wide end to a 6-8" metal ring (coat hanger). At the narrow end, fasten firmly with thick elastic or twine a medium-sized wide-mouthed jar. Attach a handle to the metal ring, and you are all set. If you already have a fine net, put the jar in the bottom and tie the net tightly around the mouth.

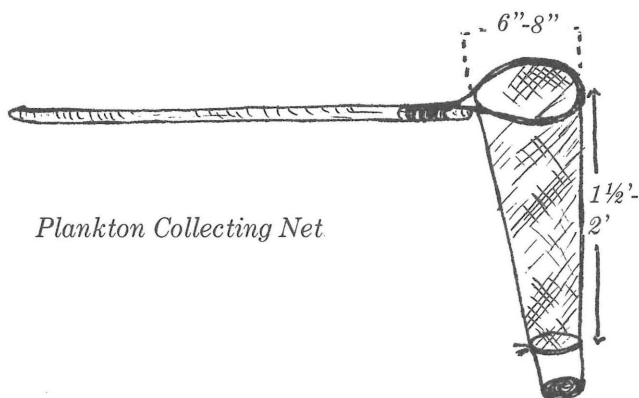


Diatoms

To collect the plankton, sweep the net along just under the surface of the water just fast enough to keep the net billowed out. Empty the jar into a larger glass container. Repeat several times. To observe the phytoplankton, you will need a strong hand lens or microscope. Some zooplankton might be seen swimming around by the naked eye by holding the jar up to the light.

Any finger pier that is not in a stillwater area is a possible collecting area, but off the docks at the Thames Yacht Club at the mouth of the Thames River is often a particularly good spot. During high tide or an incoming tide is the best time for collecting.

For those of you who are interested but apprehensive to try this on your own, the Science Center will be sponsoring a plankton-collecting trip in May. Watch for the details and the date in the May activity sheet.



Plankton Collecting Net

The interesting article *Nature Jaunt to Northern Connecticut* in last month's issue was based on an informative booklet by Frank E. Egler and William A. Niering entitled "The Natural Areas of the McLean Game Refuge," which is Publication No. 3 of the State Geological and Natural History Survey of Connecticut (1967). Copies of this bulletin, from which the map shown in the March issue was taken, are available from the State Librarian in Hartford for 25¢.

THIS LAND IS MY LAND

by Frank R. Haeni

*The gull claims only nest-room for her ground
But if an interloper there be found,
All heaven echoes with protesting sound.*

—Joel Peters, in *Everyman's House*

Some of the common springtime sights and sounds on the grassy lawns and in the flowering woods are the noisy clamorous fighting and chasing that go on between two American robins. This is the territorial fighting that occurs between two birds, usually males, when both birds claim the same area of land for a living site. This same sort of thing is happening with many other species of birds that choose one site to live on when another bird also chooses that same site.

Another frequently reported springtime activity of many birds is "reflection fighting," or the attack by a bird on its reflected image in a window or mirror. The bird mistakes the reflection of its image for an intruder and promptly tries to dispel it.

Territoriality is a social behavior in nature which limits the number of animals to a habitat based on food supply and reproductive activity and excludes the surplus animals. The surplus animals are forced into poorer habitats and form a sort of floating population reserve. Because of this, territory tends to control under- and over-population of an area.

The shape of the territory varies. It is influenced by topography and other environmental factors. Bird territories have not only width and depth but also height, which is regulated by the height of the canopy where the bird sings and feeds. An example of this would be in a spruce-cedar forest where the height territory of a white-throated sparrow would be ten feet, a red-breasted nuthatch and a magnolia warbler would defend their territories to a height of thirty feet above the ground, and an olive-sided flycatcher's territory would be found only between forty to seventy feet above the ground.

Territory is also important because it provides more or less a monopoly of the food resources nearby, which is particularly vital in adverse weather. In addition, it guarantees that there will not be any competition for nesting material. Although concrete evidence is lacking, there is a good possibility that the geographic dispersion which results because of territory reduces the incidence of disease in the population.

There are several different types of territory. The *mating, nesting, and feeding* territory is the most common. In addition to the courting, mating, and nest building that takes place here, food for the young birds is also obtained. Birds that commonly have this type of territory include many woodpeckers, shrikes, thrushes, blackbirds, warblers, and sparrows.

Another type of territory is the *mating and nesting* type. Here reproduction and nesting occurs, but the food for the young is obtained elsewhere, often on neutral ground. Examples of such territory would be found among the grebes, swans, harriers, red-winged blackbirds, and several finches.

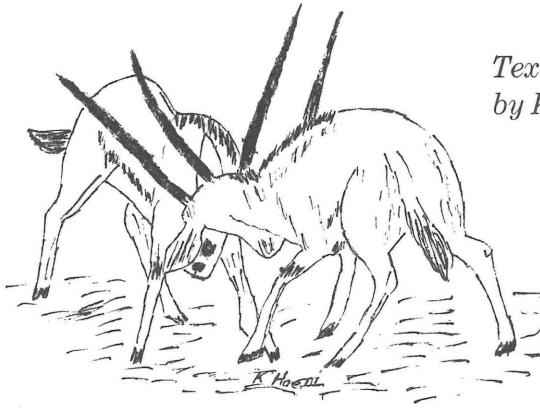
Narrowly-restricted nesting territory is found among birds which defend only the immediate surroundings of the nest. Many of the colonial waterbirds, such as the penguins, pelicans, cormorants, shearwaters, gulls, terns, and herons belong to this category. In addition, some of the solitary nesting doves, swallows, and birds of prey have this same type of nesting territory. In many colonial birds, the limits of the nest territory are determined by the distance that the sitting bird can jab its beak.

Roosting territories are probably the least important. Starlings usually will occupy the same individual perches night after night.

Many species of non-migratory birds have territories throughout the year but will usually only defend them during the breeding season.

Man can learn many lessons from the birds in terms of the stresses of a population explosion and overcrowding and the spread of communicable diseases.

Fighting Behavior of Animals



*Text and Illustration
by Kathie Haeni*

Fighting between members of the same species is almost universal among vertebrates, from fish to man. Observation of the species suggests the reason: animals of the same kind, occupying the same niche in nature, must compete for the same food, the same nesting sites, and the same building materials. Hence, the need for individual animal territories. Therefore, fighting among animals of the same species serves the important function of "spacing out" the individual or groups in the area occupied. It thereby secures for each the minimum territory required to support its existence, prevents overcrowding, and promotes the distribution of the species.

Fighting also arises from competition for mates and thus serves to select the stronger and fitter individual for propagation of the species. It is no wonder, then, that herbivores seem to fight each other as readily as do carnivores and that nearly all groups of vertebrates, except perhaps some amphibians, display aggressive behavior.

Fights between individuals of the same species never end in death and rarely result in serious injury to either combatant. Such fights are often ritualized and more nearly resemble a tournament than a mortal struggle. If this were not so, fighting would have grave disadvantages for the species. The animal that loses a fight is not necessarily less healthy or less viable; it may simply be an immature animal that cannot withstand the attack of a mature one.

This vital mode of behavior is not learned by the individual but is innate in the species, as are the organs specially evolved for such combat in many animals. The ceremonial fighting routines that have developed in the course of evolution are highly characteristic for each species. They are faithfully followed in fights between members of the species and are almost never violated.

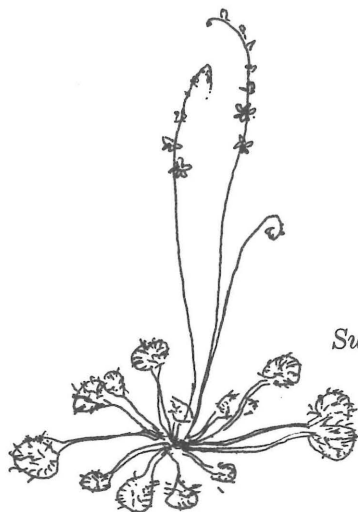
All-out fights between animals of the same species do occur but usually in species having no weapons that can inflict mortal injury. Biting animals that can kill or seriously injure one another are usually also capable of quick flight. They may engage in damaging fights, but these end when the loser makes a fast getaway. They may also "surrender" by assuming a submissive posture that the winner respects. This behavior has been observed in dogs, wolves, and birds. That is, when a young rail is attacked by an adult, it turns the back of its head (the most sensitive part of its body) toward the aggressor which immediately stops pecking.

Most animals depend neither on flight nor on surrender to avoid damaging fights. Instead they engage in a ceremonial struggle, in the course of which the contestants measure their strength in bodily contact without harming each other seriously. Often these contests begin with a duel of threats, posturings, movements, and noises designed to cow the opponent without any physical contact. Ceremonial fighting has been observed in many species of animals, such as marine iguanas, lava lizards, and cichlid fish.

The ritualization of fighting behavior assumes critical importance in conflicts between animals that are endowed with deadly weapons. Rattlesnakes, for example, can kill each other with a single bite. When male rattlesnakes fight, however, they never bite.

Aggressive behavior, therefore, is an adaptive mechanism by which species members are spaced out and the fittest selected for propagation.

NATURE JAUNT TO CHAPMAN POND



Sundew

Text by Stephan Syz

Illustrations by Josephine Merrill

This month, while anticipating the peak of spring flowers, birds, and the beginning of territoriality and nesting activities, I recommend a trip to Rhode Island to see Chapman Pond, a bog formed in a depression created by a glacier about 15,000 years ago.

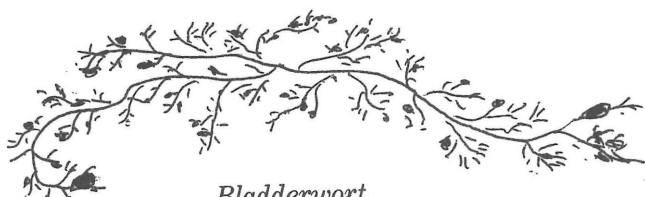
Take Route I-95 east to Route 2 and head south towards Westerly. Along the way you will drive over rolling hills of sand left by the glacier and to no surprise find the same pitch pine (mentioned last month) found growing on glacial sand terraces in northern Connecticut. What a powerful influence the soil has on determining the vegetation pattern! From plants we can also draw conclusions about the chemistry as well as the physical properties of the soil. Let us see how this applies to the bog. When you get to Westerly, go left under the bridge, take a left on Route 3, and before the railroad tracks go right on the Westerly-Branford road. After a mile, Chapman Pond will appear on the right; but don't stop here. Continue to Pound Road on the right. This will take you to the heart of the bog where you can get out and explore.

The southern white cedar is the most abundant tree in the bog. This tree is found in Rhode Island and then again in New Jersey. It is thought that during glacial times it grew continuously around the ice-covered land on the coastal plain (now under water); but when the glacier melted, it was covered over between Rhode Island and New Jersey by the rising waters.

Underfoot sphagnum moss forms a thick mat throughout the bog. This plant is naturally sterile and has been used in the past to prepare bandages. On the sphagnum, in addition to shrubs such as leatherleaf and bog laurel, more unusual herbaceous plants such as the pitcher plant, sundew, and bladderwort are found.

The bog differs from other freshwater marshes and swamps in that water is trapped. In Rhode Island, the Chapman Pond region was formed as the glacier melted and deposited a huge mass of sand and gravel that had been pushed along in its leading edge. Today this terminal moraine forms the Rhode Island shore. In the waters trapped behind the moraine, acids accumulate and retard bacterial growth, preventing a most basic principle in nature: the recycling of nutrients. Plants that die are not broken down into their component materials, and deep nutrient-trapping mats of peat are formed. This acidity also makes it difficult for plants to absorb nutrients. As is frequently the case in nature, the bog plants have adapted to this difficulty. Insects contain the needed nutrients. The sundew has developed sticky tentacles to trap them; the pitcher plant, tubular leaves; and the bladderwort, tiny traps which suck in daphnia (water fleas) when tiny trigger hairs are touched.

To return home, continue down Pound Road to Route 1 and then right towards Westerly across the top of the pine-covered terminal moraine.



Bladderwort



Pitcher plant

FROM THE DIRECTOR . . .

by Robert S. Treat

*. . . to them life seemed full of danger
—what danger is there if you don't think
of any? . . . The amount of it is, if a
man is alive, there is always danger that
he may die, though the danger must be
allowed to be less in proportion as he is
dead-and-alive to begin with. A man sits
as many risks as he runs.*

—Thoreau

A young man spoke to me about his discouragement with America and the dim prospects of our ever straightening ourselves out ecologically. A young man with a lovely wife, all his powers, and an excellent future in his chosen field, yet so little faith in the future of his country that he does not plan to bring children into it. How sad to see such brightness become dim, to feel such despair at such a young age—a period in the ages of man which traditionally leaps with optimism and promise. Even though it is essential to slow the birthrate if we are to survive, it is disheartening to hear a young couple proclaim that they will remain childless because the world is not fit to live in, or will not be when the child matures. Such a decision is the ultimate despair, almost a form of suicide, since reproduction is really an extension of one's self.

*Girls and boys and young women
generally seemed glad to be in the
woods. They looked in the pond and
at the flowers, and improved their time.*

—Thoreau

In spite of this extreme view, our young man has a point. We cannot continue to grow either in population or industrially at the current rate nor as is encouraged by business and government. The

earth is finite, natural resources are finite, and the earth cannot sustain such impact, disruption, and pollution. We must indeed learn to “grow with less” by demanding few things, using less electricity, eliminating the second car, recycling everything, cutting down on the waste, but above all being satisfied with a simpler life. Only then will we make progress in holding back the flood of “things” which overwhelm us and eat up our resources, but do not really satisfy us. Why do we always want more?

*We need the tonic of wildness . . .
We can never have enough of nature.
We must be refreshed by the sight of
inexhaustible vigor, vast and titanic
features . . . the wilderness with its
living and decaying trees, the thunder
cloud . . .*

—Thoreau

How do we “grow with less,” and to whom do we apply this maxim? Often such a phrase becomes handy to suggest to those who are at the bottom of the economic ladder and striving for a higher wage. “Grow with less” we say to *them*, but it is really *we* who need the lesson. Few will admit to being rich or well off, yet most Americans fit into that category. We must learn to recognize it and act accordingly. *We* must learn to live simply, but can we achieve “. . . the poverty that enjoys true wealth?” Perhaps we might begin by returning to nature, not in the sense of living in the woods at Walden, but in a gradual return to some understanding of who we are, what we are, and how we are part of the natural world. We need to learn again the ways of nature in the manner of our forefathers so we come to understand the interrelationship of it all: how all things are in reality hitched together and that one part cannot be disturbed without affecting the other. Perhaps when we do this we may begin to learn to be satisfied, even happy, with what awaits us in this natural world and thereby save it.

*We need to witness our own limits
transgressed, and some life pasturing
freely where we never wander.*

—Thoreau



NOTES FROM HERE AND THERE

AUDUBON WILDLIFE FILM, "Village Beneath the Sea," will be presented by Harry Pederson on Sunday, April 9, 1972 at 3 p.m. in Palmer Auditorium, Connecticut College. Mr. Pederson, who has supplied footage for Rachel Carson's "The Sea Around Us," "Twenty Thousand Leagues Under the Sea," and "Hunters of the Deep," has produced an extraordinary film designed to give a broader knowledge of the animals that live in the sea.

EARTH WEEK IN 1972 IS APRIL 17-23, and the Thames Science Center urges all members to join Senator Gaylord A. Nelson in supporting this year's Earth Week. Use the occasion as an opportunity for undertaking new projects or broadening efforts towards achieving year-round environmental goals.

BOOK OF THE MONTH: *Food Pollution*, by Gene Marine and Judith Van Allen. For years Americans have been told they are the best fed, healthiest, and longest-lived people in the world. The authors challenge the assumption in a carefully documented look at what the \$125 billion American food industry is doing in violation of our inner ecology.

A LARGE KEVIN WHITE SHIP'S COMPASS was recently donated to the Science Center by Mrs. James Hollister of Quaker Hill. This gift is a welcome addition to the Museum and will also be useful in compass-reading workshops.

TSC ASSISTANT STEPHAN B. SYZ was given a three-month study grant by the Groton Open Space Association to map the vegetation, study the former land use, and evaluate the wildlife habitats on which recommendations for the future use of Haley Farm will be made.

FOURTH ANNUAL NATURE FESTIVAL will be held at the Thames Science Center on Saturday and Sunday, June 10 and 11. Please save this date for the entire family.

FRIENDS OF THE CENTER: Mr. William A. Boyd has become a Friend of the Center, and Mrs. John Crosby Brown, Mrs. Priscilla Endicott, Mrs. Francis McGuire, Miss Elizabeth H. Harris, and Mrs. Cornelius P. Rhoads have renewed their Friend memberships.


THE CONNECTICUT CONSERVATION ASSOCIATION has found a new home in Bridgewater, Connecticut. Originally in Mystic, Executive Vice President Robert F. Kunz commented on the move as the result of the forthright, timely, and extraordinary generosity of a donor who wishes to remain anonymous. Copies of the *CCA Reporter* are at the Center.

THE SECOND ANNUAL GIVING STILL NEEDS YOUR ACTIVE SUPPORT! In order to release the two-to-one matching \$4,000 challenge grant, we must raise \$8,000; and at this writing we are less than halfway there.


NEW TELEPHONE NUMBERS AT THE SCIENCE CENTER: Because of the increased activity at the Center, it has become necessary to install two lines. Our new numbers are 442-0391 and 442-0392. Please bear with us until everyone becomes accustomed to the change.

FEBRUARY FIELD NOTES

CONTRIBUTORS: Please send or call in your field notes to Frank Haeni at the Center by the last day of the month. We are planning to publish reports by the calendar month rather than the staggered dates formerly followed. This should be more convenient for future reference.

 **New London, Waterford:** A RUDDY TURNSTONE was seen in Harkness Park Feb. 2. A drake WOOD DUCK was in Alewife Cove Feb. 6; also on the 6th was a RING-NECKED DUCK in the Quaker Hill area. In Waterford Feb. 7 a HERMIT THRUSH was seen. Other Waterford observations include a WATER PIPIT Feb. 15, a GOLDEN-CROWNED KINGLET Feb. 16, a FOX SPARROW Feb. 17, twelve COMMON REDPOLLS Feb. 24, and three performing WOODCOCK at Magonk Point on the 29th. The TSC adult bird class saw a DOUBLE-CRESTED CORMORANT Feb. 23 at Smith's Cove.

Mystic, Preston, Stonington: On Feb. 4 a YELLOW-BREASTED CHAT was seen in West Mystic. Signs of spring in Mystic include CROCUS flowering since Feb. 15, SONG and TREE SPARROWS singing daily also from the 15th, and the arrival of RED-WINGED BLACKBIRDS and GRACKLES Feb. 26. An unusual sighting was a TURKEY VULTURE near the North Stonington High School Feb. 17. Among many COMMON REDPOLLS to be seen in southeastern Connecticut were those in Preston Feb. 14 and at Haley Farm in Groton on Feb. 20. CROCUS was also found flowering at the Stone Acres Farm in Stonington Feb. 28. A rare albino EVENING GROSBEAK was observed and photographed in Preston Feb. 14-19.

 **Niantic, the Lymes, Essex:** A BALTIMORE ORIOLE and a BARRED OWL were observed in the Old Lyme area throughout the month. Two ROBINS were seen huddled in an evergreen tree during a Feb. 2 snowstorm in Essex. The first flock of RED-WINGED BLACKBIRDS arrived in Old Lyme Feb. 12 and were heard singing for the remainder of the month. An uncommon RED-BELLIED WOODPECKER and a YELLOW-BELLIED SAPSUCKER were seen in Old Lyme Feb. 10. On Feb. 17 and 25 a light-phased ROUGH-LEGGED HAWK was observed in Lyme.

East Haddam, Salem: Two rare immature BALD EAGLES were seen along the Connecticut River west of Chapman Pond in East Haddam Feb. 24. Also seen on the 24th were two MEADOWLARKS at a feeder in Salem. Birding Feb. 27 in East Haddam produced two PINE GROSBEAKS.

Rhode Island Shoreline: A field trip of the New London County Bird Club Feb. 27 along the shore from Charleston to Point Judith produced the following bird observations: more than 50 COMMON LOONS, 8-10 HORNED GREBES, one GREAT BLUE HERON, 10-12 GREATER CORMORANTS, one light-phased ROUGH-LEGGED HAWK, and COMMON SNIPE. Other birds seen included two GLAUCOUS GULLS, seven HORNED LARKS, and three MYRTLE WARBLERS.

Contributors: G. Bissell, M. Capizzano, Mrs. P. Dewire, F. Haeni, K. Haeni, Mrs. J. Haynes, B. Kashanski, Mrs. M. Lafargue, Mrs. P. Marston, P. Spitzer, S. Syz.

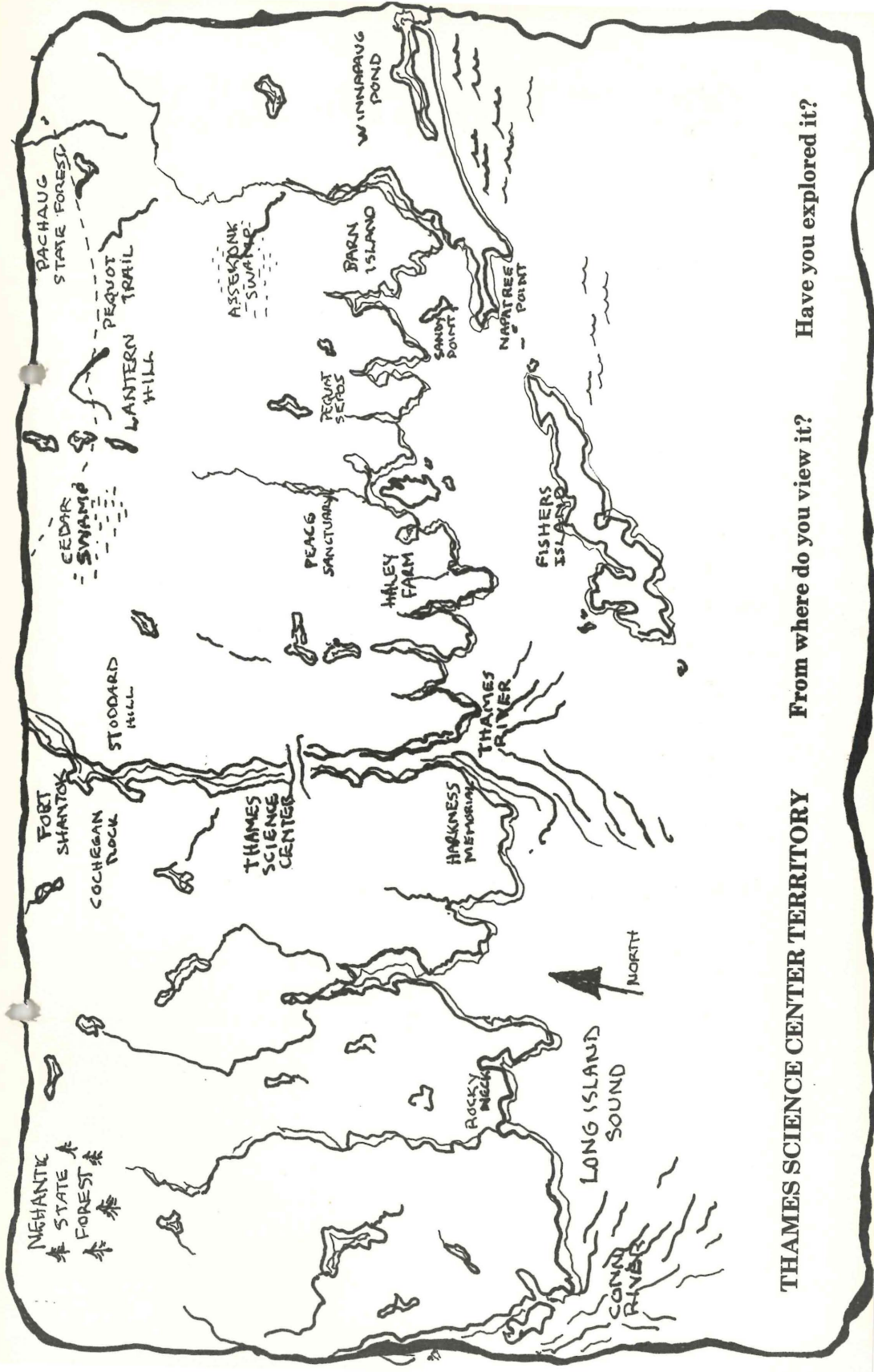
The following birds were banded during the month of February at the Thames Science Center:

Black-capped Chickadee (2)	White-breasted Nuthatch (2)
Mourning Dove (1)	Tufted Titmouse (1)
Slate-colored Junco (7)	Downy Woodpecker (1)

The large influx of Pine Siskins into southern New England is evidenced by the 79 birds banded at the Peace Sanctuary in February. Of the total, 37 Siskins were banded in three and one-half hours on one day. Other birds banded included:

Goldfinch (12)	White-breasted Nuthatch (2)
Slate-colored Junco (9)	Tree Sparrow (2)

NEW LONDON COUNTY BIRD CLUB field trips in April will be to Napatree Point (April 9), Rhode Island shore (April 16), Rocky Neck State Park and Harkness (April 23) and to the Delmarva Peninsula (April 28-30). Details available from Sam Knox (535-0554) or Grace Bissell (434-1883).



THAMES SCIENCE CENTER TERRITORY

From where do you view it?

Have you explored it?

NATURALIST NOTEBOOK

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